Remarks

Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks. Claims 1, 3-10, 12-15, and 17-32 are pending in the application. No claims have been allowed. Claims 1, 6, 12, 14, and 24 are independent. Claims 1, 4, 6, 8-10, 12, 14, 15, 20, 23, and 24-26 have been amended. Claims 2, 11, and 16 have been canceled without disclaimer and without prejudice to pursuing in a continuing application. Claims 30-32 have been added.

Cited Art

The Office action ("Action") applies the following cited art: U.S. Patent No. 7,117,488 to Franz et al. ("Franz").

§ 102 Rejection

The Action rejects claims 1-29 under 35 U.S.C. § 102(e) as being anticipated by Franz. Applicant respectfully submits that the claims are allowable over the cited art. To establish a prima facie case of anticipation, the cited art must show each and every element as set forth in a claim. MPEP § 2131.01.

Claims 1, 6, 12, 14, and 24

Claim 1, as amended, recites (emphasis added):

> type-checking the one or more representations based on a rule set, *wherein the rule set comprises rules for type-checking a type designated as an unknown type, wherein the unknown type indicates that an element of the representation is of a type that is not known.*

Claim 6, as amended, recites (emphasis added):

> *based on the determination, associating one or more elements of the representation with a type, designated as an unknown type, indicating the element can be of any type.*

Claim 12, as amended, recites (emphasis added):

> replacing the types associated with the plurality of programming languages with the types of the intermediate language, *wherein the types of the intermediate language comprise general categories of the types associated with the plurality of programming languages and a type designated as an unknown type.*

Claim 14, as amended, recites (emphasis added):

> one or more types associated with elements of the intermediate representation, *wherein at least one of the types, designated as an unknown type, indicates an element can be of any type;*
> *one or more rule sets comprising rules associated with the type, designated as the unknown type, indicating an element can be of any type;* and

Claim 24, as amended, recites (emphasis added):

> defining a plurality of types to be associated with elements of the intermediate language, *wherein one of the plurality of types indicates that an element of the intermediate language is associated with a type designated as an unknown type.*

Support for the amendments to the claims can be found, for example, in the Application at page 3, line 20 to page 4, line 2 and page 9, line 11 to page 12, line 12.

Franz's description of a safe code format for "preventing malicious or otherwise harmful code from being executed on a computer" does not teach or suggest "type-checking the one or more representations based on a rule set, *wherein the rule set comprises rules for type-checking a type designated as an unknown type, wherein the unknown type indicates that an element of the representation is of a type that is not known*" as recited by claim 1, or the similar language of claims 6, 12, 14, and 24 cited above. For example, as described in the Application at page 3, line 17, a type designated as an unknown type "indicates that an element of the intermediate language is associated with a type representation that is not known." The Application, at page 3, lines 22-24, describes one way a representation of an intermediate language can use a type designated as an unknown type as follows: "The unknown type allows for selectively retaining type information as the compilation process continues and allows multiple programming languages to be type-checked by the same type system." The Application, at page 9, lines 11-15, further describes:

The embodiment of the type representation of types shown in Appendix A also includes an "unknown" type, which can represent any type and optionally has a size associated with it. The size is the size of the machine representation of the value. An unknown type allows a compiler to drop type information in a controlled manner by changing the type information from a specific type to an unknown type.

Franz describes generating intermediate code format representations as part of a compilation process. Franz, col. 5, line 50 to col. 6, line 47. Franz describes using an intermediate code format "that preserves the safety guarantees found in the source code language in all circumstances, even where the intermediate code format representation has been altered, or where the intermediate code format representation never originated with a valid source code representation of the code," and Franz calls this format a "safe code format." Franz, col. 7, lines 4-15. Franz also describes an "embodiment where type safety is preserved in a safe code format." Franz, col. 7, lines 40-54. In order to ensure type safety, Franz describes a "safe typed single assignment form" or "safeTSA format" which assigns registers based on type: "The register planes 710 are each restricted to containing registers 720 of a single data type ... it can be seen that the first register plane 710a contains integer registers 720, the second register plane 710b contains float registers 720... ." Franz, col. 10, lines 41-58.

Rather than a "safe code format" that ensures type safety as described by Franz, claim 1 recites "wherein the rule set comprises rules for type-checking *a type designated as an unknown type, wherein the unknown type indicates that an element of the representation is of a type that is not known.*" For example, the Application (as quoted above) describes a situation where it can be advantageous to drop type information by changing a type to an unknown type. Franz does not teach or suggest a type "*designated as an unknown type*" as recited by claims 1, 6, 12, 14, and 24. In fact, Franz directly teaches away from designating a type as an unknown type because Franz is concerned with a "safe code format" where "type safety is preserved in a safe code format." Franz, col. 7, lines 4-54.

For at least these reasons, Franz also does not teach or suggest the above-cited language of claims 6, 12, 14, and 24 respectively, which each recite language related to designating a type as an unknown type.

Because Franz does not each or suggest the above-cited language of claims 1, 6, 12, 14, and 24 respectively, claims 1, 6, 12, 14, and 24 should be in condition for allowance.

Claims 2, 4, 5, 7-10, 13, 15, 17-23, 25-28, 29, 30, 31, and 32

Claims 30-32 have been added. Support for new claims 30-32 can be found, for example, in the Application at page 3, line 20 to page 4, line 2 and page 9, line 11 to page 12, line 12.

Claims 2, 4, 5, 29, and 30 depend on claim 1. Thus, for at least the reasons set forth above with regard to claim 1, claims 2, 4, 5, 29, and 30 should be in condition for allowance.

Claims 7-10 and 31 ultimately depend on claim 6. Thus, for at least the reasons set forth above with regard to claim 6, claims 7-10 and 31 should be in condition for allowance.

Claim 13 depends on claim 12. Thus, for at least the reasons set forth above with regard to claim 12, claim 13 should be in condition for allowance.

Claims 15, 17-23, and 32 ultimately depend on claim 14. Thus, for at least the reasons set forth above with regard to claim 14, claims 15, 17-23, and 32 should be in condition for allowance.

Claims 25-28 depend on claim 24. Thus, for at least the reasons set forth above with regard to claim 24, claims 25-28 should be in condition for allowance.

Request for Interview

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution. Applicants submit the foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

Conclusion

The claims should be allowable. Such action is respectfully requested.

Respectfully submitted,

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